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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/637,086	08/01/2003	Karen M. Taminger	MSC-23518-1	9092
24957	7590	05/15/2006		
NASA JOHNSON SPACE CENTER MAIL CODE HA 2101 NASA RD 1 HOUSTON, TX 77058			EXAMINER RAO, G NAGESH	
			ART UNIT 1722	PAPER NUMBER

DATE MAILED: 05/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.		Applicant(s)	
	10/637,086		TAMINGER ET AL.	
	Examiner		Art Unit	
	G. Nagesh Rao		1722	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 27 February 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) See Continuation Sheet is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 4-8, 11-15, 19-21, 23-30, 32-37, 39-40, 43-44, 47-49, 50- 53, 55-58 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some    \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>2/27/06</u>   | 6) <input type="checkbox"/> Other: _____                                    |

Continuation of Disposition of Claims: Claims pending in the application are 4-8, 11-15, 19-21, 23-30, 32-37, 39-40, 43-44, 47-49, 50-53, 55-58.

***Election/Restrictions***

- 1) Applicant's election without traverse of claims 1-58 in the reply filed on 2/27/06 is acknowledged.

***Claim Objections***

- 2) Claims 39-40 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The aforementioned claims refer to the desired property of the wire feedstock material which is viewed as a recitation of intended use by the device and do not structurally limit the apparatus itself.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
  2. Ascertaining the differences between the prior art and the claims at issue.
  3. Resolving the level of ordinary skill in the pertinent art.
  4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
- 3) Claims 4-8, 11-15, 19-21, 23-30, 32-37, 39-40, 43-44, 47-49, 53, 55-58 rejected under 35 U.S.C. 103(a) as being unpatentable over Mahoney (US Patent No. 4,762,975) in view of Sterett (US Patent No. 5,787,965).

Mahoney 975 pertains to an apparatus system capable of forming a 3-d object via a sequential deposition of wire feedstock comprising the following as can be explicitly seen in Figures 3-5 and understood in the specification, a sealed container capable of maintaining a vacuum environment (36), automated wire feed mechanism (38), an electron beam subsystem (See Abstract and Col 2 Lines 50-54) which is understood by the specification to have to occur within the contained system and would be capable of operating at a variety of wattage and voltage expectations, a vacuum subsystem comprised of a vacuum pump and vacuum

control for sustaining the vacuum environment (40 and 44), and a control console (46) for containing the vacuum and electronic controls.

Mahoney 975 however fails to teach specifically a positioning subsystem, an instrumentation subsystem, and a power distribution subsystem. Although it would be inherent for Mahoney 975 to include these subsystems, it does not specifically discuss these traits in relation to the apparatus.

Sterett 965 pertains to an apparatus for creating a free-form three-dimensional article using a layer by layer deposition. As shown in Figures 1-1c there is a chamber (15) which can be comprised of a vacuum chamber that would inherently be sealed and equipped with a work station positioning system (40), control means (54) which is comprised of a computer software system capable of operating the functions of the device in Sterett 965, the teachings of incorporating a laser system (Col 11 Lines 43-49), and a power system that aids in the operation of the device which would logically follow, considering it would be an inherent aspect of the invention in order to electrically operate the systems comprised within the apparatus (Col 14 Lines 20-30) furthermore the apparatus as seen in Figure 1 shows a framed device with a wall being formed as a result of the frame, and it would be inherent that the wall could be comprised of a material such as metal, ceramic, or polymer confluence of materials, as such Sterett 965 teaches that

various containment means for enclosing the work space include a flexible shroud, for example PVC (a type of polymer matrix composite) and the like being mounted onto a metal frame (Col 7 Lines 47-60) which by the way is in the shape of rectilinear form (See Figure 1).

It would be obvious at the time of the invention to one with ordinary skill in the art to understand given the background of Mahoney 975 attempting to solve the deposition problems that can be resulted from a molten metal droplet system with that of a wire feed system, and furthermore automate the system in controlling the environment and processing parameters set forth, it would make sense that both Mahoney 975 and Sterett 965 are seen as analogous art. The teachings of Sterett 965 enforce the desire to incorporate a positioning, instrumentation, and power distribution subsystems in order to optimize the capabilities and apparatus conditions set forth by Mahoney 975.

4) Claims 50-52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mahoney (US Patent No. 4,762,975) in view of Sterett (US Patent No. 5,787,965) in further view of Langer (US Patent No. 5,460,758).

The hypothetical device from the aforementioned fails to teach the use of some form of video or digital recording of the work environment.

Langer 758 pertains to another form of solid freeform fabrication where they teach the use of a CCD camera and video equipment to monitor the work environment and gather data onto an attached computer system to determine optimal layer deposition means for the product worked upon (See Col 2 Lines 22-50).

At the time of the invention it would have been obvious to one with ordinary skill in the art to modify the aforementioned teachings and hypothetical device to include a video recording means in order to aid in optimal manufacturing of the solid freeform product.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to G. Nagesh Rao whose telephone number is (571) 272-2946. The examiner can normally be reached on 9AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Yogendra Gupta can be reached on (571)272-1316. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

GNR

  
ROBERT DAVIS  
PRIMARY EXAMINER  
GROUP 1800/700

5/11/06